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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,626	10/29/2003	Bala Ramachandran	03SKY0003	5553

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EXAMINER	
WONG, LINDA	
ART UNIT	**PAPER NUMBER**
2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/696,626	RAMACHANDRAN ET AL.	
	Examiner	Art Unit	
	Linda Wong	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Applicant's Remarks, filed 10/16/2006, with respect to the rejection(s) of claim(s) 1-33 under Isberg et al in view of Rahman et al have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Peterzell et al (US Patent No.: 6694129).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1-12,14-26** are rejected under 35 U.S.C. 102(e) as being anticipated by Peterzell et al (US Patent No.: 6694129).

   a. **Claim 1,21**,

      i. Peterzell et al discloses

         - "converting a first signal based on a first system to a first baseband signal" (Fig. 3, label duplexer shows selectively receiving and processing a first

baseband signal depending on the mode, such as CDMA, GSM, etc., Fig. 5, label 305 shows an interface)

- "converting a second signal based on a second system to a second baseband signal" (Fig. 3, label shows selectively receiving and processing a second baseband signal depending on the mode such as CDMA, GSM, etc. and Fig. 5, label 305 shows an interface)
- "processing the first baseband signal using baseband components" (Fig. 3, labels stage 2-4)
- "processing the second baseband signal using the baseband components" (Fig. 3, labels stage 2-4)
- "processing the first baseband signal and the second baseband signal comprises selectively filtering" (Fig. 3, labels mode select and 70 show selectively filtering the baseband signal depending on the mode)
- processing the first baseband and second baseband signal comprises "selectively DC-offset correcting the first and second baseband signals" (Fig. 3, label I Channel DC offset correction and Q channel DC offset correction)
- "wherein selectively filtering and selectively DC-offset correcting comprises selecting different filtering bandwidths and different DC-offset correcting bandwidths based on which system baseband signal is to be processed" (Fig. 3, labels mode select and 70 show selectively filtering depending on the mode wherein each mode would inherently require a different filtering bandwidth and Fig. 3, label I Channel DC offset correction

and Q Channel DC offset correction is inputted in to labels 105 and 100, which indicates the bandwidth or gain is adjusted depending on the labels I and Q Channel DC offset correction. Furthermore, Col. 9, lines 30-35 discloses an adjustable LO 350 depending on the operation of the frequency and Col. 10, lines 41-59 discloses the adjustable LO drive level can change DC offsets, wherein the DC offset must be removed before demodulation. Since the LO is adjustable and causes DC offset, an adjustable DC offset correction would be needed to compensate for the adjustable LO caused offset.)

b. **Claims 2,14,22**, Peterzell et al discloses the first system and the second system each include at least one of the following systems code-division multiple access, global-positioning satellite, and global system for mobile communications. (Fig. 5, label 305,cdma,gsm and gps)

c. **Claims 3,23**, Peterzell et al discloses the processing further includes at least one of filtering (Fig. 3, label 70), amplifying (Fig. 3, label 30), providing sampling and analog-to-digital conversion (Fig. 3, labels 135,130) and correcting for direct current (DC) offset (Fig. 3, label I and Q Channel DC offset correction).

d. **Claims 4,24**, Peterzell et al discloses the processing includes processing in at least one of a digital domain and an analog domain (Fig. 3, before labels 135 and 130 is analog and after labels 135 and 130 is digital).

e. **Claims 5,16,25**, Peterzell et al discloses the processing includes configuring at least one of the baseband components for a first frequency response characteristic for the first baseband signal and configuring the at least one of

the baseband components for a second frequency response characteristic for the second baseband signal" (Peterzell et al discloses a multi-mode receiver processing modes at different frequencies, wherein each mode inherently has different frequency response characteristics (Fig. 3, label duplexer and Fig. 5, label 305))

f. **Claims 6, 7, 10, 15, 17, 19**, Peterzell et al discloses a baseband processor comprising DC cancellation, matched and jammer filtering, which can be low-pass, all-pass, high-pass filters, finite-impulse response filters or smoothing filters, automatic gain controllers (AGC), and decoding into digital data or audio streams. (Col. 7, lines 54-60)

a. **Claims 8,20**, Peterzell et al discloses a plurality of different modes or systems (Fig. 5, label 305) The system as shown in Fig. 5 would inherently receive plurality of signals, since the receiver continuously receives signals produced from any of the types of systems.

g. **Claim 9,18,26,** Peterzell et al discloses possible components within their baseband processor (Fig. 4, label 230), wherein the baseband processor comprises sample decimation. (Col. 7, lines 54-60) Since the system disclosed by Peterzell et al discloses processing baseband signals of different frequencies or modes, it is inherent that the sampling rates found in the baseband processor would vary to accommodate the Nyquist theorem.

h. **Claim 11**,

i. Perterzell et al discloses

- "a baseband section configured to process a first baseband signal based on a first system using baseband components" (Fig. 5, label 305 (different systems are determined by label 305), Fig. 5, labels 320,330,340a,340b,360a,360b,370a,370b,380a,380b, Col. 8, lines 1-26)
- "the baseband section is further configured to process a second baseband signal based on a second system (Fig. 5, label 305) using the baseband components (Fig. 5, labels 320,330,340a,340b,360a,360b,370a,370b,380a,380b, Col. 8, lines 1-26)
- "the baseband components comprise bandwidth switchable filters and bandwidth-switchable DC-offset correction elements" (Fig. 3, label I and Q Channel DC offset correction, Col. 10, lines 41-59 describes the LO drive level causes DC offset and DC offset mut be corrected before baseband signals maybe demodulated. Thus, the DC offset correction must be adjusted in order components for the adjusted LO drive level. Fig. 3, label 70 shows multiple filters for different modes)

ii. Peterzell et al fails to disclose a low pass filter within the baseband processing unit.

iii. Isberg et al discloses using a low pass filters for baseband processing. (Fig. 2, labels 42a-b) It would be obvious to one skilled in the art to use low pass filters to for easy implementation. (Col. 2, lines 34-39)

i. **Claim 12**, "a downconverter that is configured to convert a first signal to the first baseband signal and a second signal to the second baseband signal", Peterzell et al discloses a down converter. (Fig. 4, label 220 and Col. 7, lines 50-53)

3. **Claim 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterzell et al (US Patent No.: 6694129) in view of Robinett (US Publication No.: 20020193108).

   a. **Claim 13**,

      i. Peterzell et al fails to disclose "a first downconverter and a second downconverter, the first downconverter configured to convert a first signal to the first baseband signal, the second downconverter configured to convert a second signal to the second baseband signal".

      ii. Robinett discloses a multi-mode transceiver comprising a baseband processor (Fig. 3A-2, label 310), wherein two down-converters (Fig. 3A-2, labels 442 and 446), with different sampling rates (Fig. 3A-2, labels 444a and 444b) are within the baseband processor.

         - It would be obvious to one skilled in the art to use a down-converter to lower the sampling rate and increase the frequency.

4. **Claims 28-33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterzell et al (US Patent No.: 6694129) in view of Digital Video Broadcasting (http://www.dvb.org) and further in view of IEEE 802.11a Standards.

   a. **Claim 28**, Peterzell et al discloses a multi-mode receiver processing CDMA signals as well as GPS, GSM, etc. using a common basband processor. (Fig. 4, label 230 and Col. 7, lines 54-60) Peterzell et al does not disclose processing digital broadcasted signals, but Peterzell et al discloses the system is compatable to process frequencies within a wireless LAN (802.11). (Col. 3,

lines 30-40) Digital broadcasting system was produced in Europe based on OFDM, which is found in 802.11a. (Digital Video Broadcasting discloses in the history OFDM is the element of use and IEEE 802.11a Standards discloses OFDM as its type of modulation used.) Since Peterzell et al's invention can process frequencies within an 802.11 system, digital broadcasting system is based on OFDM and OFDM is found within an 802.11a system, Peterzell et al's invention can also process DBS signals. Furthermore, Peterzell et al discloses a system that can process digital and audio streams. (Col. 7, lines 54-60) Since a digital broadcast system would require a system to process digital signals, Peterzell et al's system can perform such functionalities.

b. **Claims 29 and 31** recite similar limitations as claim 7, thus the rejection of claims 29 and 31 are as stated in claim 7.

c. **Claim 30**, Regarding the limitation "low-pass filter and the DC-correction element are configured to include switchable bandwidths", Peterzell et al discloses in Fig. 3, labels mode select and 70 selective filtering depending on the mode, wherein each mode would inherently require a different filtering bandwidth. Fig. 3, label I Channel DC offset correction and Q Channel DC offset correction is inputted in to labels 105 and 100, which indicates the bandwidth or gain is adjusted depending on the labels I and Q Channel DC offset correction. Furthermore, Col. 9, lines 30-35 discloses an adjustable LO 350 depending on the operation of the frequency and Col. 10, lines 41-59 discloses the adjustable LO drive level can change DC offsets, wherein the DC offset must be removed before demodulation. Since the LO is adjustable and

causes DC offset, an adjustable DC offset correction would be needed to compensate for the adjustable LO caused offset.

d. **Claim 32**,

i. Peterzell et al discloses

- "at least one of the analog-to-digital, digital-to-analog converter, and the decimation filter" (Col. 7, lines 54-60)
- the components as stated above "is configured to have a first sampling rate for the code-division multiple access system and a second sampling rate for the digital-broadcast system" (Fig. 5, label 305, wherein the interface label 305 determines the type of mode a signal is being received in. Sampling the received signals at different sampling rates would be inherently since different modes would require different sampling rates due to the difference in frequency.)

e. **Claim 33**,

i. Peterzell et al discloses

- "at least one finite-impulse response filter, the DC correction element and the decimiation filter" (Col. 7, lines 54-60 and Fig. 3, label I and Q Channel DC offset correction)
- the components as stated above "is configured to operate at a first frequency response for the code-division multiple access system and a second frequency response for the digital-broadcast system" (Fig. 5, label 305, wherein the interface label 305 determines the type of mode a signal is

being received in. Different frequency response would be inherently found for the different modes since each mode differs in frequency.)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linda Wong whose telephone number is 571-272-6044. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Linda Wong

CHIEH M. FAN
SUPERVISORY PATENT EXAMINER